

Koch, Kristine

From: Koch, Kristine
Sent: Friday, May 30, 2014 11:03 AM
To: Alex Liverman (liverman.alex@deq.state.or.us); Allen, Elizabeth; Audie Huber (audiehuber@ctuir.com); Bob Dexter; Brian Cunninghame (cunninghame@gorge.net); callie@ridolfi.com; Conley, Alanna; Erin Madden (erin.madden@gmail.com); Fuentes, Rene; Gail Fricano (gfricano@indecon.com); Genevieve Angle (Genevieve.Angle@noaa.gov); Holly Partridge (Holly.Partridge@grandronde.org); JD Williams (jd@williamsjohnsonlaw.com); peterson.Jennifer@deq.state.or.us; Jeremy_Buck@fws.gov; Julie Weis (jweis@hk-law.com); Matt Johnson (matt@williamsjohnsonlaw.com); Matt McClincy (mcclincy.matt@deq.state.or.us); Michael.karnosh@grandronde.org; poulsen.mike@deq.state.or.us; Muza, Richard; rdelvecchio@indecon.com DelVecchio; Robert.Neely@noaa.gov; rose@yakamafish-nsn.gov; Ryan Sudbury (Ryan.Sudbury@grandronde.org); Sheldrake, Sean; Shephard, Burt; Susan J. Penoyar (PenoyarSJ@cdm.com); Todd King (KingTW@cdmsmith.com); tomd@ctsi.nsn.us; Tom Gainer (gainer.tom@deq.state.or.us)
Subject: FW: Replacement Value Suggestion to EPA

FYI...

Kristine Koch
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From: Jennifer Woronets [mailto:jworonets@anchorqea.com]
Sent: Friday, May 30, 2014 10:17 AM
To: Koch, Kristine
Cc: Carl Stivers; Amanda Shellenberger; Jim McKenna (jim.mckenna@verdantllc.com); Jennifer Woronets; Bob Wyatt; Patty Dost; Sheldrake, Sean; King, Todd W.
Subject: FW: Replacement Value Suggestion to EPA

Kristine,

Please see below from Carl.

Let us know if you have any questions.

Thank you,
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Please consider the environment before printing this email.

From: Carl Stivers
Sent: Friday, May 30, 2014 9:16 AM
To: James McKenna
Cc: Amanda Shellenberger; Jennifer Woronets; Bob Wyatt; Patty Dost
Subject: RE: Replacement Value Suggestion to EPA

Kristine –

One of the outstanding action items from the April 15, 2014 revised FS technical meeting was for LWG to provide some suggestions for replacement values for various FS analyses (Item 3 from this meeting in the current Actions Items list). This email provides these suggestions for EPA consideration as part of the non-binding informal information exchange process. We would be happy to discuss these in more detail at an upcoming FS technical meeting, as needed. Note that the LWG continues to discuss the replacement value concept internally, and we may provide some new or supplemental information on this issue in the future.

The draft FS contains estimates of sediment concentrations after construction and implementation of the various alternatives evaluated, as will the revised FS. These estimates are generally expressed in terms of surface-area weighted average concentrations (SWACs) and include both relatively short-term estimates (e.g., immediately after construction) and more long-term estimates that include natural recovery components of the alternatives. These long-term estimates are often projected for many years after construction is assumed to be complete. In addition, EPA is conducting a Sediment Decision Unit (SDU) analysis that includes short-term estimates of post remedy concentrations within designated SDU areas.

The common process for estimating short-term post-construction SWACs is to use replacement values for the actively remediated areas. Specifically, for areas where active remediation is assumed to take place (e.g., dredging or capping), a new sediment post-construction concentration is estimated. This post construction estimate is the so-called “replacement value”. The replacement value is then integrated with existing sediment concentrations from surrounding areas where active remediation is assumed not to occur in order to estimate an overall SWAC for a wider area of interest.

For SDU evaluations, our understanding is that EPA is currently using a zero replacement value for short-term estimates of post-construction SWACs. While imported upland quarry sand would likely have undetectable concentrations of most contaminants of concern, native material settling on the remediated areas will likely reflect an “equilibrium” concentration of contaminants of concern within several years (see Draft FS Section 9.3.4). For dredging, detectable concentrations in residuals is anticipated to occur on the post-dredge surface (USACE 2008). Consequently, use of a zero replacement values represents an unrealistic outcome for short-term SWACs.

Where practicable, we propose that short-term SWAC calculations in the revised FS use equilibrium estimates for replacement values. “Equilibrium” refers to inevitable concentrations caused by upstream water column inputs of settling sediments within the Site. The LWG is currently preparing a more detailed information submittal to EPA that suggests how such equilibrium values could be estimated based on available empirical data from the Site.

Consistent with the concept of using equilibrium estimates for replacement values, the specific methods for estimating replacement values for each type of remedial technology is discussed more here.

- For dredging areas, the replacement value determination would utilize scientifically sound and accepted dredge residual estimation methods. (The LWG and EPA have traded information on a range of potential methods to calculate dredge residuals. Once those discussions are complete, a set method applicable to short-term SWAC calculations can be established.)

- Where calculated dredge residual concentrations are below anticipated equilibrium estimates, the equilibrium estimates would be used for dredging area replacement values.
- Otherwise, the calculated dredge residual estimate would be used for the dredging area replacement value.
- For Enhanced Monitored Natural Recovery (EMNR) areas, a mass balance of surface sediment concentrations after natural mixing of EMNR material into the existing sediment bed surface can be conducted, very similar to residual calculations.
 - Where EMNR mass balance estimates are lower than equilibrium estimates, equilibrium values would be used for replacement values.
 - Otherwise, the mass balance estimate would be used for EMNR area replacement values.
- For capping areas, only the equilibrium estimates would be used as replacement values because they provide a direct indication of the anticipated concentrations of contaminants settling on the new cap surface over time.

The above exercise requires several calculation steps that are applied on a location specific basis (e.g., calculation of residuals concentrations). In some cases, less complex preliminary SWAC estimates (such as for SDU analyses) may be utilized for areas that have not yet been assigned a remediation technology. In these cases, we propose that an equilibrium estimate for such preliminary SWAC calculations would be suitable. Such a replacement value might in some areas underestimate the level of dredge residuals and overestimate the cap surface concentrations immediately after construction. However, because equilibrium values represent the concentration that the Site will trend towards regardless of the specific remedial technology applied, these estimates are more representative than a zero replacement value assumption.

For long-term SWAC estimates that incorporate natural recovery processes, the LWG continues to support using the draft FS fate and transport model as a good estimator of long-term sediment conditions for remedial alternatives. The model incorporates a variety of Site-specific empirical data relevant to equilibrium conditions in a comprehensive and consistent manner. EPA has indicated in revised FS discussions some concerns about the model, and modeling approaches in general. However, EPA and LWG have not yet discussed any potential alternative methods for projecting long-term SWACs for various alternatives and how those might be superior to the existing model or other modeling approaches. It is recognized in the cleanup industry that all model outputs reflect some level of uncertainty. The LWG maintains that the uncertainties expressed in the Draft FS model outputs is well within the acceptable range for an FS-level of analysis. The LWG and EPA will need to collectively decide whether the existing F&T model outputs are suitable for projecting long-term SWACs for remedial alternatives.

In summary, the LWG recommends:

- For short-term post remediation SWAC calculations, equilibrium estimates should be used as replacement values either
 - Directly for preliminary or general SWAC estimates, or
 - In combination with calculations of expected post dredge residuals and post EMNR material placement concentrations as described above.
- The LWG will be following up with specific data and methods that can be used for calculating such equilibrium-based replacement values.

- For long-term post remediation SWAC estimates, the QEA Fate and Transport model projections should continue to be used, perhaps with additional discussion of the uncertainty estimates and assessments presented in the revised FS.

Please let me know if there are any questions.

Carl

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